

Cisco MDS 9124 Multilayer Fabric Switch

The Cisco® MDS 9124 Multilayer Fabric Switch (Figure 1), with 24 Fibre Channel ports capable of speeds of 4, 2, and 1 Gbps, offers outstanding value by providing flexibility, high availability, security, and ease of use at an affordable price in a compact 1-rack-unit (1RU) form factor. With its flexibility to expand from 8 to 24 ports in 8-port increments, the Cisco MDS 9124 offers the densities required for both departmental SAN switches and edge switches in enterprise SANs. The Cisco MDS 9124 supports quick configuration and task wizards that allow it to be deployed quickly and easily in networks of any size. Powered by Cisco MDS 9000 NX-OS Software, it includes advanced storage networking features and functions and is compatible with Cisco MDS 9500 Series Multilayer Directors and Cisco MDS 9200 Series Multiservice Fabric Switches, providing transparent, end-to-end service delivery in core-edge deployments.

Figure 1. The Cisco MDS 9124



Highlights

- **Exceptional flexibility and scalability:** The Cisco MDS 9124 offers up to 24 autosensing Fibre Channel ports capable of speeds of 4, 2, and 1 Gbps in a compact 1RU form-factor chassis with 4 Gbps of dedicated bandwidth for each port and an aggregate platform bandwidth of 192 Gbps. The base configuration has 8 active ports with flexibility to upgrade onsite to 16 and 24 ports, in 8-port increments, with the Cisco MDS 9124 On-Demand Port Activation licenses. The Cisco MDS 9124 is an ideal platform as a standalone departmental SAN switch and as an edge switch in enterprise core-edge SANs. The 1RU compact design is ideal for space-constrained environments where high port density per rack is imperative.
- **Intelligent storage networking services at an affordable price:** The Cisco MDS 9124, powered by Cisco MDS 9000 NX-OS Software, offers intelligent storage networking capabilities such as virtual SANs (VSANs), PortChannels, quality of service (QoS), and security for cost-effective design, deployment, provisioning, and management of departmental and enterprise SANs.
- **Highly available platform for mission-critical deployments:** The Cisco MDS 9124 is designed for environments in which downtime is not an option. It offers nondisruptive software upgrades, optional dual-redundant, hot-swappable AC or DC power supplies (with integrated fans), VSANs for fault isolation, and optional dual-redundant VSANs for fault isolation, and PortChannels for Inter-Switch Link (ISL) resiliency.
- **Comprehensive security framework:** The Cisco MDS 9124 supports RADIUS and TACACS+, port security, fabric binding, Fibre Channel Security Protocol (FC-SP) host-to-switch and switch-to-switch authentication, Secure FTP (SFTP), Secure Shell Version 2 (SSHv2) and Simple Network Management Protocol Version 3 (SNMPv3) implementing Advanced Encryption Standard (AES), VSANs, hardware-enforced zoning, broadcast zones, and per-VSAN role-based access control (RBAC).

- **Simplified storage management:** The Cisco MDS 9124 includes built-in storage network management, with all features available through a command-line interface (CLI) or the Cisco Data Center Network Manager (DCNM) for SAN Essentials Edition (formerly Cisco Fabric Manager), a centralized management tool with task-based wizards that simplify management of a standalone switch or multiple switches and fabrics.
- **Sophisticated diagnostics:** Industry-leading intelligent diagnostics such as Fibre Channel ping, Fibre Channel traceroute, Switched Port Analyzer (SPAN), Cisco Fabric Analyzer, and integrated call-home capability enhance reliability, facilitate faster problem resolution, and reduce service costs.
- **Reduced total cost of ownership (TCO):** Common platform architecture and the use of Cisco MDS 9000 NX-OS Software intelligent storage-networking services across all Cisco MDS 9000 Family switches reduce ongoing operating expenses by providing a consistent set of provisioning, management, and diagnostic capabilities.

Main Features and Benefits

Exceptional Flexibility and Scalability

The Cisco MDS 9124 offers up to 24 autosensing Fibre Channel ports capable of speeds of 4, 2, and 1 Gbps in a compact 1RU form-factor chassis. With 4 Gbps of dedicated bandwidth for each port, the Cisco MDS 9124 is designed to meet the performance and scalability requirements of the most demanding environments.

The flexibility of the Cisco MDS 9124 is provided by the Cisco MDS 9124 On-Demand Port Activation licenses, which allow expansion in 8-port increments. Customers can start with a base configuration of 8 ports and can upgrade onsite to 16 and 24 ports using these licenses. With advanced storage networking capabilities built into the platform, it is an ideal choice both as a standalone departmental SAN switch and as an edge switch in enterprise core-edge SANs.

The Cisco MDS 9124 includes hot-swappable, Small Form-Factor Pluggable (SFP), LC interfaces. All SFP interfaces are 4, 2, and 1 Gbps, with autosensing capabilities. Individual ports can be configured with either short-or long-wavelength SFP optics for connectivity up to 500 meters (m) and 10 kilometers (km), respectively.

VSANs for Segmentation and Isolation

VSAN, an industry standard for fabric virtualization capabilities, allows more efficient storage network use by creating hardware-based isolated environments within a single physical SAN fabric or switch. Up to 16 VSANs are supported per switch. Each VSAN can be zoned as a typical SAN and maintains its own fabric services and management domains for added scalability and resilience. VSANs allow the cost of SAN infrastructure to be shared among more users, while helping ensure segregation of traffic and retaining independent control of configuration on a VSAN-by-VSAN basis.

Advanced Traffic Management for High-Performance, Resilient SANs

Advanced traffic management capabilities integrated into the Cisco MDS 9124 simplify deployment and optimization of core-edge fabrics.

- Virtual output queuing helps ensure line-rate performance on each port, independent of traffic pattern, by eliminating head-of-line blocking.
- Each port group consisting of 4 ports has a pool of 64 buffer credits, with a default of 16 buffer credits per port. When extended distances are required, up to 61 buffer credits can be allocated to a single port within the port group. This extensibility is available without additional licensing.
- PortChannels allow users to aggregate up to 16 physical ISLs into a single logical bundle, providing optimized bandwidth use across all links. The bundle can consist of any port from the switch, helping ensure that the bundle remains active even in the event of a port group failure.

- Fabric Shortest Path First (FSPF)-based multipathing provides the intelligence to load-balance across up to 16 equal-cost paths and, in the event of a switch failure, dynamically reroute traffic.
- QoS can be used to manage bandwidth and control latency, to prioritize critical traffic.
- Comprehensive port and flow statistics facilitate sophisticated performance analysis and service-level agreement (SLA) accounting.

Advanced Diagnostics and Troubleshooting Tools

Management of storage networks requires proactive diagnostics, tools to verify connectivity and route latency, and mechanisms for capturing and analyzing traffic. The Cisco MDS 9124 integrates the industry's most advanced analysis and debugging tools. Power-on self-test (POST) and online diagnostics provide proactive health monitoring. The Cisco MDS 9124 provides the integrated hardware functions required to implement diagnostic capabilities such as Fibre Channel Traceroute to detail the exact path and timing of flows and SPAN to intelligently capture network traffic. After traffic has been captured, it can be analyzed with the Cisco Fabric Analyzer, an embedded Fibre Channel analyzer. With the Cisco MDS 9124, Cisco delivers a comprehensive toolset for troubleshooting and analysis of an organization's storage network.

Comprehensive Security

Recognizing the need for unassailable security in storage networks, the Cisco MDS 9124 offers an extensive security framework to protect highly sensitive data crossing today's enterprise networks.

- VSANs are used to achieve higher security and greater stability by providing complete isolation among devices that are connected to the same physical SAN.
- Intelligent packet inspection at the port level, including the application of access control lists (ACLs) for hardware enforcement of zones, VSANs, and advanced port security features.
- Extended zoning capabilities help ensure that broadcasts are restricted to the selected zones (the broadcast zones).
- FC-SP provides switch-to-switch and host-to-switch Diffie-Hellman Challenge Handshake Authentication Protocol (DH-CHAP) authentication supporting RADIUS or TACACS+ to help ensure that only authorized devices access protected storage networks.

This framework, in conjunction with management access and control plane security, makes the Cisco MDS 9000 Family among the most secure platforms of its kind.

High-Availability Platform for Mission-Critical Environments

The Cisco MDS 9124 is designed for mission-critical availability. Nondisruptive software upgrades; hot-swappable, redundant fans and power supplies; and the unique ability to automatically restart failed processes combine to define a new standard for fabric switch availability.

High availability is implemented at the fabric level through the industry's most robust and highest-performance ISLs. The Cisco PortChannels feature allows users to aggregate up to 16 physical ports into one logical bundle. The bundle can sustain the failure of any physical link without causing a reset. Additionally, FSPF multipathing provides the intelligence to load-balance across up to 16 equal-cost paths and, if a switch fails, to dynamically reroute traffic. The Cisco MDS 9124 dramatically increases fabric-switch availability, reducing TCO.

When the Cisco MDS 9124 is deployed as an edge switch, the Cisco N-Port Virtualization (NPV) mode support provides resiliency on uplinks to the core. The NPV fabric-port (F-port) trunking and channeling features also enable SANs to be scaled without reaching Fibre Channel domain ID limits.

Simplified Management

The Cisco MDS 9124 provides three principal modes of management: the Cisco MDS 9000 Family CLI, the Cisco DCNM for SAN Essentials Edition, and integration with third-party storage management tools.

- **Consistent, logical CLI:** Adhering to the syntax of the widely known Cisco IOS® Software CLI, the Cisco MDS 9000 Family CLI is easy to learn and delivers broad management capabilities. The Cisco MDS 9000 Family CLI is an extremely efficient and direct interface designed to provide optimal capabilities to administrators in enterprise environments.
- **Quick Configuration Wizard:** The Quick Configuration Wizard helps eliminate management complexity and creates a readily available SAN environment for small- and mid-sized business applications. The wizard allows server access to storage to be set up quickly and easily in a single step, using an intuitive GUI.
- **Cisco DCNM:** Cisco DCNM can be licensed for management of a combination of SAN and LAN environments. Cisco DCNM streamlines the provisioning of the unified fabric and proactively monitors the LAN and SAN components. Cisco DCNM for SAN Essentials Edition (formerly Cisco Fabric Manager), which comes standard with the Cisco MDS 9124, is an easy-to-use application that simplifies management across multiple switches and converged SAN fabrics. Focused on supporting efficient operations and management of virtual machine-aware fabrics, Cisco DCNM for SAN Essentials Edition provides a robust framework and comprehensive feature set that meets the routing, switching, and storage administration needs of present and future virtualized data centers. The optional Cisco DCNM for SAN Advanced Edition (formerly Cisco Fabric Manager Server) extends the standard Cisco DCNM for SAN Essentials Edition software by providing server federation, historical performance monitoring for network traffic hotspot analysis, centralized management services, and advanced application integration. All standard Cisco DCNM for SAN Essentials Edition features and functions are fully integrated with the optional Cisco DCNM for SAN Advanced Edition capabilities.
- **APIs:** The Cisco MDS 9124 provides an extensive set of APIs for integration with third-party and user-developed management tools. The APIs are based on industry-standard protocols, including SNMP and the Storage Networking Industry Association (SNIA) Storage Management Initiative Specification (SMI-S).

Product Specifications

Minimum Software Requirements

- Cisco MDS 9000 SAN-OS Software Release 3.1(1) supporting Cisco MDS 9124 and Cisco Fabric Manager (Note: SAN-OS 3.x releases are still supported but are End-of-Life)
- Cisco MDS 9000 NX-OS Release 4.1(1) supporting Cisco MDS 9124 and Cisco Fabric Manager
- Cisco MDS 9000 NX-OS Release 5.0(1) supporting Cisco MDS 9124 and Cisco Fabric Manager
- Cisco MDS 9000 NX-OS Maintenance Release 5.2(x) supporting Cisco MDS 9124 and DCNM for SAN

Performance and Port Configurations

- Port speed: 4-, 2-, and 1-Gbps autosensing with 4 Gbps of dedicated bandwidth per port
- Buffer credits: Up to 64 for a group of 4 ports, with a default of 16 buffer credits per port
- Ports per chassis: Up to 24 ports (base configuration with 8 ports; additional ports in 8-port increments with the port activation license)
- PortChannels: Up to 16 ports in a PortChannel

Supported Optics, Media, and Transmission Distances

Table 1 summarizes the interfaces and distances supported by the Cisco MDS 9124.

Table 1. Optics, Media, and Transmission Distances Supported by the Cisco MDS 9124

SFP Optics	Wavelength (nanometers)	Fiber Type	Core Size (microns)	Giga Baud Rate (GBd)	Cable Distance
4G FC-SW	850	MMF	62.5	1.0625	984 ft (300m)
			62.5	2.125	492 ft (150m)
			62.5	4.250	230 ft (70m)
			50.0	1.0625	1640 ft (500m)
			50.0	2.125	984 ft (300m)
			50.0	4.250	492 ft (150m)
4G FC-LW	1310	SMF	9.0	1.0625	32,808 ft (10 km)
			9.0	2.125	32,808 ft (10 km)
			9.0	4.250	32,808 ft (10 km)

For the SFP compatibility matrix, please refer to

http://www.cisco.com/en/US/prod/collateral/ps4159/ps6409/ps4358/product_data_sheet09186a00801bc698.html.

Product Specifications

Table 2 lists the product specifications for the Cisco MDS 9124.

Table 2. Product Specifications for the Cisco MDS 9124

Item	Specification
Security	<ul style="list-style-type: none"> • VSANs • Zoning <ul style="list-style-type: none"> ◦ Hardware-enforced zoning ◦ Logical-unit-number (LUN) zoning and read-only zones • FC-SP for host-to-switch and switch-to-switch authentication • Port security • Management access <ul style="list-style-type: none"> ◦ SSHv2 ◦ SNMPv3 ◦ IP ACLs

Item	Specification
Compatibility	<p>Fibre Channel protocols</p> <ul style="list-style-type: none"> • FC-PH, Revision 4.3 (ANSI INCITS 230-1994) • FC-PH, Amendment 1 (ANSI INCITS 230-1994/AM1-1996) • FC-PH, Amendment 2 (ANSI INCITS 230-1994/AM2-1999) • FC-PH-2, Revision 7.4 (ANSI INCITS 297-1997) • FC-PH-3, Revision 9.4 (ANSI INCITS 303-1998) • FC-PI, Revision 13 (ANSI INCITS 352-2002) • FC-PI-2, Revision 10 (ANSI INCITS 404-2006) • FC-PI-3, Revision 4 (ANSI INCITS 460-2011) • FC-PI-4, Revision 8 (ANSI INCITS 450-2008) • FC-PI-5, Revision 6 (ANSI INCITS 479-2011) • FC-FS, Revision 1.9 (ANSI INCITS 373-2003) • FC-FS-2, Revision 1.01 (ANSI INCITS 424-2007) • FC-FS-2, Amendment 1 (ANSI INCITS 424-2007/AM1-2007) • FC-FS-3, Revision 1.11 (ANSI INCITS 470-2011) • FC-LS, Revision 1.62 (ANSI INCITS 433-2007) • FC-LS-2, Revision 2.21 (ANSI INCITS 477-2011) • FC-SW-2, Revision 5.3 (ANSI INCITS 355-2001) • FC-SW-3, Revision 6.6 (ANSI INCITS 384-2004) • FC-SW-4, Revision 7.5 (ANSI INCITS 418-2006) • FC-SW-5, Revision 8.5 (ANSI INCITS 461-2010) • FC-GS-3, Revision 7.01 (ANSI INCITS 348-2001) • FC-GS-4, Revision 7.91 (ANSI INCITS 387-2004) • FC-GS-5, Revision 8.51 (ANSI INCITS 427-2007) • FC-GS-6, Revision 9.4 (ANSI INCITS 463-2010) • FCP, Revision 12 (ANSI INCITS 269-1996) • FCP-2, Revision 8 (ANSI INCITS 350-2003) • FCP-3, Revision 4 (ANSI INCITS 416-2006) • FCP-4, Revision 2 • FC-SB-2, Revision 2.1 (ANSI INCITS 349-2001) • FC-SB-3, Revision 1.6 (ANSI INCITS 374-2003) • FC-SB-3, Amendment 1 (ANSI INCITS 374-2003/AM1-2007) • FC-SB-4, Revision 3.0 (ANSI INCITS 466-2011) • FC-BB-2, Revision 6.0 (ANSI INCITS 372-2003) • FC-BB-3, Revision 6.8 (ANSI INCITS 414-2006) • FC-BB-4, Revision 2.7 (ANSI INCITS 419-2008) • FC-BB-5, Revision 2.0 (ANSI INCITS 462-2010) • FC-VI, Revision 1.84 (ANSI INCITS 357-2002) • FC-SP, Revision 1.8 (ANSI INCITS 426-2007) • FAIS, Revision 1.03 (ANSI INCITS 432-2007) • FAIS-2, Revision 2.23 (ANSI INCITS 449-2008) • FC-IFR, Revision 1.06 (ANSI INCITS 475-2011) • FC-FLA, Revision 2.7 (INCITS TR-20-1998) • FC-PLDA, Revision 2.1 (INCITS TR-19-1998) • FC-Tape, Revision 1.17 (INCITS TR-24-1999) • FC-MI, Revision 1.92 (INCITS TR-30-2002) • FC-MI-2, Revision 2.6 (INCITS TR-39-2005) • FC-DA, Revision 3.1 (INCITS TR-36-2004)Class of service: Class 2, Class 3, and Class F • Fibre Channel standard port types: E, F, FL, and B • Fibre Channel enhanced port types: SD, ST, and TE • IP over Fibre Channel (RFC 2625)
Fabric services	<ul style="list-style-type: none"> • Name server • Registered state change notification (RSCN) • Login services • Public loop • Broadcast • In-order delivery • Name-server zoning

Item	Specification
Diagnostics and troubleshooting tools	<ul style="list-style-type: none"> • Power-on self-test (POST) diagnostics • Online diagnostics • Internal loopbacks • SPAN • Fibre Channel traceroute capability • Fibre Channel ping • Fibre Channel debug • Cisco Fabric Analyzer • Syslog • Port-level statistics
Management	<ul style="list-style-type: none"> • Access methods <ul style="list-style-type: none"> ◦ Out-of-band 10/100 Ethernet port ◦ EIA/TIA-232 serial console port ◦ In-band IP over Fibre Channel • Access protocols <ul style="list-style-type: none"> ◦ CLI ◦ SNMP ◦ SMI-S • Security <ul style="list-style-type: none"> ◦ RBACL using RADIUS or TACACS+ authentication, authorization, and accounting (AAA) functions ◦ VSAN-based roles ◦ SSHv2 ◦ SNMPv3 • Management applications <ul style="list-style-type: none"> ◦ Cisco MDS 9000 Family CLI ◦ Cisco Device Manager ◦ Cisco DCNM for SAN Essentials Edition ◦ Cisco DCNM for SAN Advanced Edition (optional software package)
Availability	<ul style="list-style-type: none"> • Nondisruptive software upgrades • Stateful process restart • Per-VSAN fabric services • Redundant, hot-swappable power supplies and fans (optional) • Hot-swappable SFP optics • PortChannels aggregating up to 16 ports • Online diagnostics • NPVmode with F-Port trunking and channeling (edge switch deployment only)
Serviceability	<ul style="list-style-type: none"> • Configuration file management • Call home • Port beaconing • System LEDs • SNMP traps for alerts
Environmental	<ul style="list-style-type: none"> • Ambient operating temperature is 32 to 104°F (0 to 40°C) • Ambient nonoperating temperature is -40 to 158°F (-40 to 70°C) • Physical dimensions (H x W x D) of 1RU: 1.75 x 17.5 x 16 in. (4.5 x 44.5 x 40.6 cm) • Weight: Switch with dual power supplies: 18.5 lb (8.4 KG)

Item	Specification
Power and cooling	<p>AC power supplies (300W) (maximum of 2 per switch):</p> <ul style="list-style-type: none"> • Input: 100 to 240 VAC nominal (+/-10% for full range) <ul style="list-style-type: none"> ◦ Input current maximum 20A • Input current steady state <ul style="list-style-type: none"> ◦ 4A @ 110 VAC ◦ 2A @ 220 VAC ◦ 50 to 60 Hz nominal (+/-3 Hz for full range) • Output: <ul style="list-style-type: none"> ◦ Consumption: 80W, 0.73A@110V, 0.36A@220V <p>DC Power supplies (300W) (maximum of 2 per switch):</p> <ul style="list-style-type: none"> • Input: 8A @ -48V to -60V • Output: 25A @ 12 VDC <p>Airflow:</p> <ul style="list-style-type: none"> • Front to rear
Safety	<ul style="list-style-type: none"> • UL 60950 -1 • CAN/CSA-C22.2 No. 60950 -1 • EN 60950 -1 • IEC 60950 -1 • AS/NZS 60950 • IEC 60825 • EN 60825 • 21 CFR 1040
EMC	<ul style="list-style-type: none"> • FCC Part 15 (CFR 47) Class A • ICES-003 Class A • EN55022 Class A • CISPR22 Class A • AS/NZS CISPR22 Class A • VCCI Class A • EN55024 • ETS300 386 • EN50082-1 • EN61000-3-2 • EN61000-3-3 • EN61000-6-1 • CISPR24 • NEBS <ul style="list-style-type: none"> ◦ GR-63-Core NEBS Level 3 ◦ GR-1089-Core NEBS Level 3 • ETSI <ul style="list-style-type: none"> ◦ ETS 300 019 Storage Class 1.1 ◦ ETS 300 019 Transportation Class 2.3 ◦ ETSI 300 019 Stationary Use Class 3.1

Ordering Information

Table 3 provides ordering information for the Cisco MDS 9124.

Table 3. Ordering Information for the Cisco MDS 9124

Product Description	Part Number
Cisco Direct Orders Only	
Cisco MDS 9124 24-Port Fabric Switch with 8 4-Gbps active ports, VSANs, PortChannels, Cisco DCNM for SAN Essentials Edition, one AC Power Supply, 8 4/2/1-Gbps Fibre Channel-SW SFP transceivers, and generic Cisco Accessory Kit. Option to order second AC Power Supply, configure-to-order (CTO)	DS-C9124AP-K9
Cisco MDS 9124 8 port upgrade Kit; On-Demand Port Activation license (uninstalled . . . see Note 1)) to activate increment of 8 ports and 8 4/2/1-Gbps Fibre Channel-SW SFP transceivers, configure-to-order (CTO)	M9124PL8-4G-AP
Cisco MDS 9124 8 port upgrade Kit; On-Demand Port Activation license to activate increment of 8 ports and 8 4/2/1-Gbps Fibre Channel-SW SFP transceivers, spare	M9124PL8-4G-AP=

Product Description	Part Number
Cisco MDS 9124 On-Demand Port Activation License for electronic delivery; activates increments of 8 ports (no SFPs included), spare	L-M9124PL8-4G=
Optional redundant AC power supply (uninstalled), configure-to-order (CTO)	DS-C24-300AC
Optional redundant AC power supply, spare	DS-C24-300AC=
MDS 9124 Accessory Kit for Cisco, spare	DS-9124-KIT-CSCO=
Cisco Direct and OSM/STI Orders	Part Number
Cisco MDS 9124 24-Port Fabric Switch with 8 4-Gbps active ports, VSANs, PortChannels, and Cisco DCNM for SAN Essentials Edition with one DC Power Supply. Option to order 8 SW SFPs with unit, configure-to-order (CTO)	DS-C9124DC-K9
Optional redundant DC power supply, spare	PWR-C49-300DC=
OSM/STI Orders Only	Part Number
Cisco MDS 9124 24-Port Fabric Switch with 8 4-Gbps active ports, VSANs, PortChannels, and Cisco DCNM for SAN Essentials Edition with one AC Power Supply. Option to order 8 SW SFPs with unit, configure-to-order (CTO)	DS-C9124-K9
Cisco MDS 9124 24-Port Fabric Switch with 8 4-Gbps active ports, VSANs, PortChannels, and Cisco DCNM for SAN Essentials Edition with one AC Power Supply. Option to order 8 SW SFPs and second PS with unit SFPs with unit, configure-to-order (CTO)	DS-C9124-0-K9
Cisco MDS 9124 24-Port Fabric Switch with 16 4-Gbps active ports, VSANs, PortChannels, and Cisco DCNM for SAN Essentials Edition with one AC Power Supply. Option to order 16 SW SFPs and second PS with unit SFPs with unit, configure-to-order (CTO)	DS-C9124-1-K9
Cisco MDS 9124 24-Port Fabric Switch with 24 4-Gbps active ports, VSANs, PortChannels, and Cisco DCNM for SAN Essentials Edition with one AC Power Supply. Option to order 24 SW SFPs and second PS with unit SFPs with unit, configure-to-order (CTO)	DS-C9124-2-K9
Cisco MDS 9124 On-Demand Port Activation License; activates increments of 8 ports, spare	M9124PL8-4G=
Cisco MDS 9124 On-Demand Port Activation License for electronic delivery; activates increments of 8 ports, spare	L-M9124PL8-4G=
Optional redundant AC power supply (uninstalled . . . see Note 1), configure-to-order (CTO)	DS-C24-300AC
Optional redundant AC power supply, spare	DS-C24-300AC=
MDS 9124 Accessory Kit for Cisco, configure-to-order (CTO)	DS-9124-KIT-CSCO
MDS 9124 Accessory Kit for Cisco, spare	DS-9124-KIT-CSCO=
MDS 9124 Accessory Kit for EMC, configure-to-order (CTO)	DS-9124-KIT-EMC
MDS 9124 Accessory Kit for EMC, spare	DS-9124-KIT-EMC=
MDS 9124 Accessory Kit for HDS, configure-to-order (CTO)	DS-9124-KIT-HDS
MDS 9124 Accessory Kit for HDS, spare	DS-9124-KIT-HDS=
MDS 9124 Accessory Kit for HP, configure-to-order (CTO)	DS-9124-KIT-HP
MDS 9124 Accessory Kit for HP, spare	DS-9124-KIT-HP=
MDS 9124 Accessory Kit for IBM, configure-to-order (CTO)	DS-9124-KIT-IBM
MDS 9124 Accessory Kit for IBM, spare	DS-9124-KIT-IBM=
MDS 9124 Accessory Kit for SUN, configure-to-order (CTO)	DS-9124-KIT-SUN
MDS 9124 Accessory Kit for SUN, spare	DS-9124-KIT-SUN=
MDS 9124 Accessory Kit for DELL, configure-to-order (CTO)	DS-9124-KIT-DELL
Small Form-Factor Pluggable (SFP) Optical Transceiver Options	
Cisco MDS 9000 Family 4/2/1-Gbps Fibre Channel-SW, SFP, LC, configure-to-order (CTO) only for OSM/STI orders	DS-SFP-FC4G-SW
Cisco MDS 9000 Family 4/2/1-Gbps Fibre Channel-SW, SFP, LC, spare	DS-SFP-FC4G-SW=
Cisco MDS 9000 Family 4/2/1-Gbps Fibre Channel-SW, SFP, LC, 4-pack, spare	DS-SFP-4G-SW-4=
Cisco MDS 9000 Family 4/2/1-Gbps Fibre Channel-LW (10 km), SFP, LC, spare	DS-SFP-FC4G-LW=
Optional Software Licenses	
Cisco MDS 9000 Family Enterprise Package (uninstalled . . . see Note 1), configure-to-order (CTO)	M9100ENT1K9
Cisco MDS 9000 Family Enterprise Package, spare	M9100ENT1K9=
Cisco Data Center Network Manager (DCNM) for SAN Advanced Edition (uninstalled . . . see Note 2), configure-to-order (CTO)	DCNM-SAN-M91-K9
Cisco Data Center Network Manager (DCNM) for SAN Advanced Edition, spare	DCNM-SAN-M91-K9=
Cisco E-delivery Data Center Network Manager (DCNM) for SAN Advanced Edition, spare	L-DCNM-S-M91-K9=

Product Description	Part Number
Cisco DCNM for SAN Advanced Edition Configurable Pack for MDS 9000, spare (See Note 3)	DCNM-SAN-PAK=
Cisco E-delivery DCNM for SAN Advanced Edition Configurable Pack for MDS 9000, spare (See Note 3)	L-DCNM-S-PAK=
Power Cords (Spares . . . see Note 4)	
Power Cord, 250VAC 10A IRAM 2073 Plug, Argentina, Spare	CAB-9K10A-AR=
Power Cord, 250VAC 10A 3112 Plug, Australia, Spare	CAB-9K10A-AU=
Power Cord, 250VAC 10A GB1002 Plug, China, Spare	CAB-9K10A-CH=
Power Cord, 250VAC 10A CEE 7/7 Plug, EU, Spare	CAB-9K10A-EU=
Power Cord, 250VAC 10A SI16S3 Plug, Israel, Spare	CAB-9K10A-ISR=
Power Cord, 250VAC 10A CEI 23-16/VII Plug, Italy, Spare	CAB-9K10A-IT=
Power Cord, 125VAC 13A KSC8305 Plug, Korea, Spare	CAB-9K10A-KOR=
Power Cord, 250VAC 10A SABS 164/1 Plug, South Africa, Spare	CAB-9K10A-SA=
Power Cord, 250VAC 10A, Straight C15, MP232 Plug, SWITZ, Spare	CAB-9K10A-SW=
Power Cord, 125VAC 15A CNS10917-2, Taiwan, Spare	CAB-9K10A-TWN=
Power Cord, 250VAC 10A BS1363 Plug (13 A fuse), UK, Spare	CAB-9K10A-UK=
Power Cord, 125VAC 13A NEMA 5-15 Plug, North America, Spare	CAB-9K12A-NA=
Cabinet Jumper Power Cord, 250 VAC 13A, C14-C15 Connectors, Spare	CAB-C15-CBN=

Note 1: License documentation ships with switch unit in Accessory Kit for customer installation on switch.

Note 2: License documentation ships with switch unit in Accessory Kit for customer installation on management server.

Note 3: Cisco DCNM for SAN Advanced Edition Configurable Packs have additional Configure-To-Order Part Numbers not shown here which are detailed in the Cisco Dynamic Configuration Tool.

Note 4: Configure-to-Order (CTO) part numbers for Cisco Direct and OSM/STI orders are same as Spares except without “=” suffix.

Service and Support

Cisco offers a wide range of services programs to accelerate customer success. These innovative services programs are delivered through a unique combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction. Cisco Services offerings help you protect your network investment, optimize network operations, and prepare the network for new applications to extend network intelligence and the power of your business. For more information about Cisco Services, see [Cisco Technical Support Services](#) or [Cisco Advanced Services](#).

For More Information

- For more information about the Cisco MDS 9124, visit <http://www.cisco.com/go/9124> or contact your local account representative.
- For detailed information about supported transceivers, see http://www.cisco.com/en/US/prod/collateral/ps4159/ps6409/ps4358/product_data_sheet09186a00801bc698.html.
- For detailed information about the optional Cisco MDS 9000 Family Enterprise Package software, see http://www.cisco.com/en/US/prod/collateral/ps4159/ps6409/ps6029/product_data_sheet09186a00801ca6ac.html.
- For detailed information about the standard and optional Cisco Data Center Network Manager software, see <http://www.cisco.com/go/dcnm>.



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